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EXAMINER

JOYNER, KEVIN

ART UNIT	PAPER NUMBER
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1744

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/735,672	Applicant(s) KON ET AL.	
	Examiner Kevin C. Joyner	Art Unit 1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election of Group IV directed to claim 5 in the reply filed on December 21, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Abstract

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the **abstract not exceed 150 words in length** since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

3. Claim 5 is objected to because of the following informalities: An unnecessary semicolon is present in line 22 of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 5 recites the limitation "a second O-ring" in line 19 to 20 of the claim. This limitation is unclear because a first O-ring has not been defined. For examination purposes the office will treat the limitation as though it reads, "an O-ring".

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laughlin (U.S. Patent No. 5,435,157) in view of Stephens (U.S. Application No. 2004/0107993), Matz (U.S. Patent No. 5,838,454), Molitor (U.S. Patent No. 4,529,032), Thomas et al.

(U.S. Patent No. 5,417,233), Mercer et al. (U.S. Patent No. 3,739,942), and Nakada et al. (U.S. Patent No. 3,886,917).

Laughlin discloses a warewashing chemical dispenser comprising: a vacuum breaker (referenced as a check valve); a dispenser as shown in Figure 1; and an overflow preventive mechanism as shown by the overflow opening (114), and the overflow outlet (122). Regarding the limitations of the vacuum breaker including an inlet path, an outlet path, a plate-shaped support shaft inserted through an air hole of the cap, the valve disc being moved up and down to be able to open and close the air hole, the vacuum breaker having an inlet passage provided in an inner chamber of a casing to form the inlet path substantially perpendicular to the outlet path to afford fountaining a flow of hot water perpendicularly upward, a vertical support shaft upper portion extended downwardly of a vertical support shaft of the valve disc so that the vertical support shaft formed to have a smaller diameter than that of the air hole, an O-ring mounted on an upper surface of the valve disc, the plate-shaped packing being mounted on a bottom surface of the cap opposed to the upper surface of the valve disc, and a cap dismounting lever provided centrally of an upper surface of the cap and having an air port, Laughlin does not appear to specifically disclose these.

However, Stephens discloses a vacuum breaker with a water leak containment device used for washing machines as disclosed in paragraph 26. The reference further discloses that the vacuum breaker includes an inlet path and an outlet path, a plate-shaped packing (31) mounted on a lower end surface of a cap (29) as shown in Figure 4, and a valve disc (40) that is capable of being moved up and down to be able to open

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and close the air hole as shown in Figures 7A, 7B, & 7C, the vacuum breaker has an inlet passage provided in an inner chamber of a casing (25) to form the inlet path substantially perpendicular to the outlet path to afford fountaining a flow of hot water perpendicularly upward as disclosed in paragraphs 27-30, a vertical support shaft upper portion extended downwardly of a vertical support shaft of the valve disc so that the valve disc can act stably at low pressures as disclosed in Figures 7A, 7B, & 7C as well as paragraph 6, a vertical support shaft lower portion (48) of the vertical support shaft formed to have a smaller diameter than that of the air hole as shown in Figures 7A, 7B, & 7C, an O-ring (31) mounted on an upper surface of the valve disc (40) as shown in Figure 4, the plate-shaped packing being mounted on a bottom surface of the cap opposed to the upper surface of the valve disc, and a cap dismounting lever (32) provided centrally of an upper surface of the cap and having an air port as shown in Figures 4, and 7A-C. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Laughlin to include the vacuum breaker of Stephens in order to utilize a liquid capture and containment device for directing captured liquid back into the vacuum breaker when the liquid inlet pressure drops.

Laughlin continues to disclose that the dispenser includes a detergent dissolving nozzle (204) arranged centrally of a container receiving part (46), a solution outlet (132 and 136) arranged offset from a center of the container receiving part to form a storage section T in the dispenser as shown in Figure 1, and a detergent feed control circuit board provided with a hot water control solenoid valve (50) as disclosed in column 4,

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lines 13-15, a vacuum breaker (referenced as a check valve), and a detergent feed control circuit board provided with an indicator as disclosed in column 5, lines 6-14. Laughlin does not appear to specifically disclose that the control circuit board has a buzzer and is located in the storage section of the dispenser, wherein equipments requiring piping and wiring are received compactly in the dispenser. Matz discloses an automatic detergent dispenser that is used with warewashers. The reference discloses a dispenser that includes a fluid inlet and outlet with a control circuit located compactly with the rest of the wiring and piping inside of the dispenser as disclosed in Figure 2. The control circuit board includes a light (38) and buzzer (referenced as an alarm 40) to alert the homeowner when the dispenser is low on chemical solution as disclosed in column 6, lines 1-14. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Laughlin to include the control circuit board with all the wiring and piping located compactly within the dispenser in order to provide an efficiently compact device, as well as providing the control circuit board with a light and a buzzer to alert an operator of a low level of solution in the dispenser as shown by Matz.

As disclosed above, Laughlin states that the device comprises an overflow preventive mechanism, and a container receiving part with a detergent-dispensing nozzle. Laughlin does not appear to specifically disclose that the dispenser is provided with an overflow preventive mechanism including an overflow preventive sensor arranged in a container receiving part to be disposed in a little higher position than that of an upper surface of a detergent dissolving nozzle, and including two overflow

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preventive sensor electrodes, and wherein when a solution outlet is clogged and a detergent solution in a detergent dissolving system rises to contact between the two overflow preventive sensor electrodes, electric current thus flowing is detected, a signal thereof is transmitted to a microcomputer in a control circuit board to close a hot water control solenoid valve after stoppage of feed control, and simultaneously a situation of operation is informed by an indicator and a buzzer on a detergent feed control circuit board. Molitor discloses a device that utilizes the recovery of waste energy in a dishwashing dispensing system as broadly defined. The system includes a container receiving part (referenced as a tank (T)) with an overflow preventive mechanism including an overflow preventive sensor arranged in a container receiving part, and including two overflow preventive sensor electrodes (116 and 117), and that is capable of when a solution outlet is clogged and a detergent solution in a detergent dissolving system rises to contact between the two overflow preventive sensor electrodes, electric current thus flowing is detected, a signal thereof is transmitted to a microcomputer in a control circuit board to close a hot water control solenoid valve after stoppage of feed control (column 4, lines 1-25), and simultaneously a situation of operation is informed by an indicator and a buzzer on a detergent feed control circuit board as disclosed in Figure 11 as well as columns 8 and 9, lines 57-68 and 1-8 respectively. More specifically it would have been obvious to one of ordinary skill in the art that the sensors of Molitor would be disposed in a little higher position than that of an upper surface of a detergent dissolving nozzle of Laughlin in order to effectively utilize the overflow sensors. If the sensors were positioned below the detergent-dissolving nozzle, then

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they would constantly be engulfed in fluid and would continuously set off the overflow alarm. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Laughlin to include an overflow preventive mechanism as described above to detect an problems of overflow in the container receiving part as exemplified by Molitor.

Regarding the limitations of the detection mechanism, Laughlin does not appear to specifically disclose a detection mechanism including a protective cover pivotally mounted on one end of an upper opening through a hinge shaft, a powder adapter mounting thereto a depending piece, to which a magnet is mounted, and mounted to the protective cover, and a detection unit arranged on an upper portion of a container receiving part and receiving therein a magnetism detecting element in a position, which is opposed to the magnet when the powder adapter is received, and wherein when the protective cover is closed, the magnet is present in a detection range of the magnetism detecting element for starting of feed control, and when the protective cover is opened, a hot water control solenoid valve is closed after the stop feed control, and simultaneously a situation of operation is informed by an indicator and a buzzer on a detergent feed control circuit board. Thomas discloses a dispenser for the use with warewashers. The dispenser includes a powder adapter with a detection mechanism as shown in Figure 2. The detection mechanism includes a protective cover (13) pivotally mounted on one end of an upper opening through a hinge shaft (33), a powder adapter mounting thereto a depending piece (the depending piece is the protective cover (13) with the hinge (33) and the piece directly below the hinge the is not

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numbered in Figure 2), to which a magnet (66) is mounted, and mounted to the protective cover, and a detection unit (referenced as a proximity switch (67)) arranged on an upper portion of a container receiving part and receiving therein a magnetism detecting element (referenced as a proximity switch (67)) in a position, which is opposed to the magnet when the powder adapter is received, and wherein when the protective cover is closed, the magnet is present in a detection range of the magnetism detecting element and being capable of starting of feed control, and when the protective cover is opened, a hot water control solenoid valve is capable of being closed after the magnet comes to a position outside the detection range of the magnetism detecting element to stop feed control as disclosed in column 6 lines 28-35, and simultaneously a situation of operation is informed by an indicator and a buzzer on a detergent feed control circuit board (90) as shown in Figures 5 and 6. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Laughlin to include a detection mechanism as described above as exemplified by Thomas so that the water flow to the dispenser is turned off when an operator is opening the powder adapter for safety purposes.

Concerning the limitations of the safety cut-off mechanism, as previously disclosed above the reference of Laughlin comprises a control circuit. As disclosed above as well, Laughlin in view of Matz discloses a control circuit board with an indicator and buzzer that are located compactly within the dispenser, wherein said control circuit board is capable of informing the state of feed control of a detergent as broadly defined. Laughlin in view of Matz does not appear to specifically disclose that

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the dispenser comprises a container mounting and dismounting safety cut-off mechanism of a detergent dissolving system including a container bearing part provided on a lower portion of a container receiving part and having substantially the same inclination as that of an inclined shoulder of a detergent container, a vertically moving shaft provided at an upper end thereof with an inclination portion corresponding to the inclined shoulder of the detergent container, a rod mounting a magnet to a lower end thereof and connected to a lower portion of the vertically moving shaft, a coil spring provided on the rod to make the vertically moving shaft vertically movable, and a detergent feed control circuit board, on which are arranged a magnetism detecting element arranged around a position of the magnet, and an indicator and a buzzer, which indicate and inform a state of feed control of a detergent, and wherein when the detergent is started and when the detergent container is removed and the magnet moves outside from the detection range of the magnetism detecting element, a hot water control solenoid valve is closed after the feed control of the detergent is stopped, and simultaneously a situation of operation is informed by the indicator and the buzzer on the detergent feed control circuit board.

Mercer discloses a dispenser used with a warewashing chemical assembly. The reference further discloses that a plurality of magnets are used with a magnetism detecting element and an electric circuit board in a safety cut-off mechanism that is compactly placed inside of the dispensing device. More specifically the safety cut-off mechanism includes;

a container bearing part provided on a lower portion of a container receiving part and having substantially the same inclination as that of an inclined shoulder of a detergent container (As broadly defined, the dispenser assembly is a part that is capable of receiving a container, thus making it a container receiving part. The container receiving part includes the flexible diaphragm-dispensing valve (28). The container bearing part is the outer portion of the valve (28) that produces an inclined portion that is substantially the same incline as the metering valve (26), which is clearly located on the lower end portion of the container receiving part. This container bearing part has the same inclination as the shoulder of a detergent container as broadly defined.)

a vertically moving shaft (24) provided at an upper end thereof with an inclination portion (referenced as a metering valve (26)) corresponding to the inclined shoulder of the detergent container (Since it has the same inclination of the container bearing part, then it has the same inclination corresponding to the shoulder of a detergent container.)

a rod mounting a magnet (64 & 66) to a lower end thereof and connected to a lower portion of a vertically moving shaft (24),

a spring provided on the rod to make the vertically moving shaft vertically movable (the bimetallic spring (34) is a rod that is given a small angular inclination that provides that springing element thus allowing it to be a spring provided on a rod), and

a detergent feed control circuit board (column 4, lines 1-9) in a position that is arranged around a magnetism-detecting element (as broadly defined, the bimetallic spring (34) is a magnetism detecting element as disclosed in column 4 lines 1-9) that is

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connected to an electrical circuit as shown in Figures 3 and 5. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Laughlin in view of Matz to further include a safety cut-off mechanism as described above in order to control the flow of detergent that is dispensed into the warewasher as exemplified by Mercer.

Regarding the limitations wherein, when the magnet is present in a detection range of the magnetism detecting element, feed control of the detergent is started and when the detergent container is removed and the magnet moves outside from the detection range of the magnetism detecting element, a hot water control solenoid valve is closed after the feed control after the feed control of the detergent is stopped, and simultaneously a situation of operation is informed by the indicator and the buzzer on the detergent feed control circuit board. Since the apparatus of Laughlin in view of Matz and Mercer contains all the structural parts necessary as recited in the limitation, then the device is fully capable of performing the limitations recited above.

Regarding the limitation of the spring being a spring coil. Mercer teaches that the coil is a bimetallic coil and not a spring coil, however Nakada teaches that a spring coil and a bimetallic spring are functionally equivalent alternatives by their interchanging use in U.S. Patent No. 3,886,917. This is disclosed in column 2, lines 14-16 of the reference. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute a coil spring for the bimetallic spring in the warewashing chemical dispenser of Mercer, as such is a known equivalent alternative as exemplified by Nakada.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin C. Joyner whose telephone number is (571) 272-2709. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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